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September 12, 2014

Ms. Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street SW
Washington, DC 20554

Re: Ex Parte Communication with Nicholas Degani Regarding Connect America Fund: WC Docket No. 10-90;WT Docket No. 10-208;WC Docket No. 14-58; WC Docket No. 07-135; CC Docket No. 01-92.

Dear Ms. Dortch:

On September 9, 2014, myself, Robert Hance, Midwest Energy Chief Executive Officer and David Allen, Midwest Energy Regulatory Director, Mark Lewellen, Manager of Spectrum Advocacy, Deere & Company ("Deere"), Catherine Wang, Bingham McCutchen LLP counsel to Deere, and RJ Karney, Director, Congressional Relations, American Farm Bureau Federation met with Commissioner Pai's legal advisor Nicholas Degani and legal intern Erika Shannon. The group provided an update to Mr. Degani of the advocacy efforts of the Rural Working Group that includes Deere, the American Farm Bureau Federation and many other interested parties such as commodity producers and equipment manufacturers.

The group discussed the critical role that broadband plays in promoting agricultural activities. Farmers and ranchers are increasingly dependent on broadband to feed, clothe and fuel the world. Innovations in precision farming depend on mobile broadband to transmit data. Broadband also enables farmers and ranchers to access real time data for sales, purchase and machinery performance.

Agricultural needs for mobile broadband will not be realized until adequate fiber infrastructure is constructed in rural America. Midwest Energy and other electric cooperatives are ready to construct the necessary infrastructure that will enable greater deployment of mobile services. The group discussed utilizing Connect America Fund ("CAF") support to promote competition for the construction of broadband networks in rural areas. Encouraging rural entities to compete for federal funds to build fiber networks will increase the likelihood that the infrastructure will actually get constructed.

Mr. Lewellen provided a copy of the "Iowa Connect Every Acre" initiative, attached to this letter. The eight point plan focuses on three main issues: access, location and expansion. Iowa is 75% cropland and the state produces over $10B per year in corn and over $6B in soybeans. Likewise, there are about 10 million acres of farmland in Michigan, and the state is home to nearly 55,000 farms averaging 182 acres each.

The group discussed the potential for the Commission to adopt CAF and Mobility Fund rules recognizing that farm cropland requires access to broadband services to support modern agricultural operations including machine-to-machine operations and encouraging recipients to provide coverage to croplands. We also discussed the potential treatment of farms as anchor institutions. The Commission currently defines anchor institutions as schools, libraries, hospitals, public safety entities, institutions of higher education and community support organizations. The important role of farms and ranches to rural communities feeding the nation and supporting the national economy should elevate the priority of federal funding of fiber infrastructure.

We appreciate the opportunity to discuss the vital role that broadband plays in agriculture and the broader rural communities. Advanced agricultural technology, such as machine-to-machine communications, is poised to revolutionize productivity, but the expanded deployment of fiber fed cellular towers are key to realizing this potential. The agricultural community and all those who serve it seek the intervention of the Commission to facilitate competition and promote the deployment of broadband networks.

Pursuant to Section 1.1206 of the Commission's rules, a copy of this letter is being filed via ECFS. If you have any questions or I may be of assistance, please do not hesitate to contact me. Thank you.

Sincerely,

**DYKEMA GOSSETT PLLC**

/s/
Shannon M. Heim

cc: Nicholas Degani

# CONNECT EVERY ACRE

**Bringing Broadband to Rural Iowa**

**Background**

In 2014 Governor Branstad offered a "Connect Every Iowan" broadband initiative to help bridge the digital divide and better deploy technology assets across all of Iowa. Looking forward, in addition to initiatives to better connect Iowans, Governor Branstad now brings additional solutions that recognize the critical broadband needs of rural Iowa, particularly in regards to economic development and the revolutionary new opportunities for economic growth in rural Iowa as our agricultural producers adopt and deploy new data-driven technologies in the field.

Iowa farmers are increasingly reliant on broadband to feed, clothe and fuel the world. There are about 350 million acres of major agricultural cropland in U.S. production, 26 million of which are right here in Iowa. The state is almost 75% cropland (which is five times the US average of about 15%) and we produce over $10B per year in corn and over $6B per year in soybeans.

Machine-to-Machine (M2M) communications in the field using imbedded modems (machines-with-modems) and mobile broadband is becoming an increasingly essential component of modern farming practice. In fact, precision farming technology and M2M telematics should be viewed in Iowa as leading mobile broadband innovations in our important agricultural sector. These and future innovations require adequate cellphone and mobile broadband coverage.

**Today's Farmer**

Vital economic (and now high-tech) activity occurs in rural areas where an ever larger amount of food is being grown to meet world demand. While the United States is a net exporter of food today, high quality broadband connectivity will be important to ensure ongoing US leadership and US farmer competitiveness around the globe.

Over the past several decades, technology has enabled farmers to achieve ever greater levels of productivity. The first wave focused on optimizing the vehicle. The second wave focused on optimizing the fleet. The third wave is focusing on connecting the farmer "in the cab" to the cooperative, agronomist, or other agriculture service providers who can help reduce input costs, increase yields, and further enable sustainable farming practices. Machines are being designed to communicate with each other, the owners, operators, dealers, and agricultural consultants, with the ultimate goal of making farmers more productive and profitable.

A Hudson Institute paper, "Broadband for Rural America: Economic Impacts and Economic Opportunities," examines the growing broadband gap between rural and urban areas and argues that the gap will lead to significant economic losses. The study discusses the role broadband plays in agriculture including innovations in precision farming as well as use of real-time data for sales, purchases, machinery performance, etc. "When combined with the capacity of broadband, agricultural equipment that began as a tractor is evolving into a 'mobile geospatial data-collection platform with the capacity to receive, use, sense, store and transmit data as an integral part of its . . . performance.'"

> "Information technology ... could have at least as big an impact on agriculture in the next half century as mechanization had in the previous century." -- Hudson Institute Paper quoting the conclusion of a group of University of Illinois scientists.

**The Future of Farming**

Improvements in efficiency and productivity are in the use of data, which depends on mobile broadband for communications and data flow to provide intelligent products and services. This technology brings more precision, convenience, and up-time to operations in several categories as listed below:

- Machine Optimization: Provides solutions that will get the most out of your machine using precision technology and wireless, mobile data networks for higher levels of productivity and increased up-time.
- Logistics Optimization: Will better manage logistics and machinery use from remote locations through fleet management solutions and increased machine-to-machine communication.
- Ag Decision Support: Provides user-friendly monitors, sensors, and wireless, mobile networks to provide easy access to machinery and agronomic data essential to making proactive management decisions for operations.

The goal is to acquire real time access to the vital signs (e.g., engine systems, equipment utilization and fuel consumption) of farm equipment while in the field.

With this superior, precise, site-specific data, a farmer can analyze and carefully adjust his or her farming methods to be the most efficient, most economical, and most environmentally friendly possible, thus improving sustainability. Bringing all this M2M data together requires additional communications capacity and mobile broadband is the key enabler.

**Covering Iowa's Cropland**

For an agriculture powerhouse like Iowa to thrive, mobile broadband must cover our major areas of cropland and not just individual households, businesses, and roadways. In Iowa, farms are "key anchor institutions" where they are economic engines providing jobs, food, and more to the surrounding communities. Farms typically consist of multiple buildings and non-contiguous croplands. Mobile broadband is a necessary, cost effective solution to cropland coverage. In assessing the need for expanded broadband coverage in Iowa, the following must be considered:

The potential number of machines-with-modems working our 26 million acres of cropland should be counted when determining mobile broadband coverage It should also be recognized that these machines-with-modems, also involve a driver who has a cell phone (a modem) in their pocket and perhaps a tablet (another modem) on the seat.

**The Problem is Lack of Mobile Broadband in Cropland**

Today, many Iowa farmers face a lack of cellular coverage in the fields where their machines operate. The lack of coverage needed for these solutions to transmit telemetric data from the machines is already a concern, and that concern will grow as data volumes increase. This is not a problem that can be addressed in the foreseeable future with satellites, new technology, or more spectrum.

The current problem is due to severely limited mobile telecommunications infrastructure, which can only currently be resolved by constructing more cell towers, which are the essential platform for wireless coverage, all of which must be connected by "backhaul" to the broadband network provider by fiber optic cables.

If we only focus on providing fixed broadband to farm buildings, we will overlook the important need for wireless coverage of cropland necessary to fuel Iowa's extensive farming operations which, in turn, supports essential economic activity and provides jobs throughout Iowa's local communities.

**Infrastructure Incentives to "Connect Every Acre"**

Iowa's carriers that serve areas with cropland need specific inducements to drive the expansion of infrastructure of fiber- connected cell towers with middle mile backhaul deeper into farming areas.

The Governor's 2014 legislation provided an accelerated depreciation deduction for income tax, a 7% tax credit, and a 100% property tax exemption for broadband infrastructure deployed in targeted areas. Colorado used a state sales and use tax refund program for targeted areas.

Carriers should be eligible to receive funding for middle mile facilities that support wireline backhaul for mobile broadband, not just for infrastructure serving end users or middle mile facilities that support wired last mile connections.

Our Eight Point Plan to Connect Every Acre:

**ACCESS**

**1. Uniform Cell Siting Guidelines –** Respect for municipalities' zoning authority, recognition of reasonable siting regulations and a predictable (timely) process is required because of the vital need for more cell towers

**2. Co-location (Demand based) –** Some public/private organizations need coverage based on geography (not population density) and public/private "partnership" co-location on cell towers should be encouraged. Some examples of these organizations are:

a. Public safety (Iowa & FirstNet)
b. Transportation (smart cars & positive train control)
c. Utilities (oil & gas & electric & water)
d. Agriculture (JDLink™ from John Deere)

**3. Co-location (Supply based)** Encourage infrastructure sharing between cell carriers providing mobile broadband and the Wireless Internet Service Providers (WISP) who provide a complimentary fixed broadband service to households and businesses

**4. Broadband Bundling Bonus (BBB) –** Iowa can offer additional incentives for broadband projects that bundle or take advantage of more than one state program to bring broadband to our state

**LOCATION**

**5. Cropland Development Zones (CDZ) –** These zones are defined as the intersection (or overlap) between unserved Eligible Census Blocks (ECBs) and acres of major US cropland as defined by USDA and additional incentives are offered to bring broadband coverage to our farms and cropland on acres where none exists today (see below)

**6. Dig Once –** Notify providers of any utility trenching project to deploy fiber for backhaul if the right-of-way is already torn up for a gas/water/power project

**7. Conduits along Highways –** Require that broadband conduits be installed along and under highways as part of certain construction projects

**EXPANSION**

**8. Directing resources at Rural Utility Service (RUS) programs –** RUS has a sizeable portfolio of loans to borrowers that derive a significant portion of their revenues from USF, which means there must be a predictable level of support so carriers can plan, borrow and invest in infrastructure.

**Other Benefits of Iowa Broadband Legislation**

This legislation will also play a vital role in:

Streamlining the infrastructure deployment needed to provide broad geographic rural coverage for our FirstNet, public safety and emergency responders

Assisting other aspects of rural life including consumer welfare, civic participation, public safety and homeland security, community development, health care delivery, energy independence and efficiency, education, worker training, private-sector investment, entrepreneurial activity, job creation and economic growth.

**More Detail: Cropland/Broadband Development Zones (CBDZ)**

Additional incentives are needed to bring mobile broadband and middle mile backhaul to our farms and cropland where no coverage exists today. Middle mile backhaul is required for both fixed service to our farms and mobile broadband coverage for our cropland.

In order to focus investment exactly where it is needed, that is cropland with no mobile broadband coverage; Governor Branstad proposes the creation of new Cropland/Broadband Development Zones (CBDZ). These zones are defined as the intersection (or overlap) between unserved Eligible Census Blocks (ECBs) as defined by the FCC and acres of major US cropland in Iowa as defined by USDA (or Iowa Department of Agriculture).

The FCC recognized in the USF/ICC Transformation Order that universal service is a shared Federal and state responsibility and that states remain key partners. The FCC is seeking comment in the Rural Broadband Experiment Report and Order (FCC RBB R&O, 14-98, Released 14 July 2014) on inducements for state action to assist in the expansion of broadband.

In Paragraphs 97-101 RBB R&O the FCC seeks comment on providing a bidding credit to any bidder that is leveraging governmental support from non-Federal sources to lower the amount of funding. For example, the FCC could provide a 10 % bidding credit in situations where an applicant has obtained a commitment from a non-Federal government entity to match Federal dollars on a four-to-one basis, and a 5 % bidding credit an applicant has obtained a commitment to match Federal dollars on an eight-to-one basis.

Iowa could say, "The FCC USF/CAF is set up to put primarily fixed broadband where our households and businesses are. But if we only focus on providing fixed broadband to our farm buildings for example, we will overlook the important need for wireless coverage of cropland necessary to fuel Iowa's extensive farming operations which, in turn, supports essential economic activity and provides jobs throughout Iowa's local communities. We want to create incentives for shared financial responsibility for expanding middle mile infrastructure which benefits both fixed and mobile broadband."

Each of the ninety-nine counties in Iowa could decide on their own to participate. For the ones who do, they would designate the unserved cropland acres in their county and provide some of the initial funding. Perhaps, Iowa could then match the county contributions as well. This triple combination of inducements can drive the expansion of infrastructure of fiber- connected cell towers with middle mile fiber backhaul deeper into farming areas.

Become a Volunteer
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**The Governor Branstad Committee**

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**Before the**
**FEDERAL COMMUNICATIONS COMMISSION**
**Washington, D.C. 20554**

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| In the Matter of | ) | |
| | ) | |
| Connect America Fund | ) | WC Docket No. 10-90 |
| | ) | |
| Universal Service Reform—Mobility Fund | ) | WT Docket No. 10-208 |
| | ) | |
| ETC Annual Reports and Certifications | ) | WC Docket No. 14-58 |
| | ) | |
| Establishing Just and Reasonable Rates for Local Exchange Carriers | ) | WC Docket No. 07-135 |
| | ) | |
| Developing an Unified Intercarrier Compensation Regime | ) | CC Docket No. 01-92 |
| | ) | |

# COMMENTS OF MIDWEST ENERGY COOPERATIVE

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August 8, 2014

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## I. Introduction.

Midwest Energy Cooperative ("Midwest") files its Comments in this proceeding pursuant to the Notice of Proposed Rulemaking issued by the Federal Communications Commission ("Commission") on June 10, 2014 seeking comment on additional mechanisms to fulfill the Commission's mission to ensure that all consumers "have access to … advanced telecommunications and information services."[1] Midwest appreciates the Commission's commitment to deploying advanced telecommunications services to all Americans and not leave anyone behind the evolving digital economy.[2]

Midwest is an electric cooperative serving more than 35,000 members in Southern Michigan, Northern Indiana and Ohio. Not-for-profit rural electric utilities provide electric energy to over 42 million people in 47 states or 12 percent of electric customers. Electric cooperatives own and maintain 2.5 million miles or 42 percent of the nation's electric distribution lines. The service territory of rural electric cooperatives covers 75 percent of the U.S. landmass and serves an average of 7.4 consumer members per mile.

In the 1930s, rural electric cooperatives, like Midwest Energy, answered the call of rural America to bring electricity to the countryside. Electricity was a vital and

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[1] *See Connect America Fund, Universal Service Reform – Mobility Fund, ETC Annual Reports and Certifications, Establishing Just and Reasonable Rates for Local Exchange Carriers, Developing an Unified Intercarrier Compensation Regime*, WC Docket Nos. 10-90, 14-58, 07-135, WT Docket No. 10-208, CC Docket No. 01-92, Report and Order, Declaratory Ruling, Order, Memorandum Opinion and Order, Seventh Order on Reconsideration, and Further Notice of Proposed Rulemaking, FCC 14-54 (June 10, 2014) ("*Omnibus Order*") at para. 1 (quoting 47 U.S.C. § 254(b)(3)).

[2] *See Connect America Fund, ETC Annual Reports and Certifications*, WC Docket Nos. 10-90, 14-58, Statement of Commissioner Mignon L. Clyburn, FCC 14-98 (July 14, 2014) ("…we will not leave behind those Americans who today find themselves on the wrong side of the digital divide.").

transformative product that larger investor-owned utilities were unwilling and unable to provide to rural America. Today, Midwest Energy and other rural electric cooperatives are again answering the call to develop the next transformative utility, robust broadband, in rural America. Midwest offers comments in this docket to put its initiative, offered through its telecommunications subsidiary, Midwest Connections, in context of the Commission's regulation of rural broadband.

## II. Rural Electric Cooperatives Can Transform Broadband Deployment in Rural America.

According to a recent NTIA study, only 23 percent of rural residents have wireline broadband at a speed of 50 Mbps compared to 98 percent of urban residents.[3] The National Broadband Map and anecdotal evidence from Midwest members suggests that in the Midwest service area, 50 Mbps is even less available.[4] Significant gaps in the availability of broadband in rural America strand our members on the wrong side of the digital divide.[5] Without robust access to broadband, these Americans cannot take advantage of the educational opportunities or employment prospects that most Americans now take for granted. Midwest's members are clamoring for access to the same level of

[3] *See* David Beebe and Anne Neville, *Broadband Availability Beyond the Rural/Urban Divide*, National Telecommunications and Information Administration, U.S. Department of Commerce (May 2013), available at http://www.ntia.doc.gov/files/ntia/publications/broadband_availability_rural_urban_june_2011_final.pdf.

[4] *See* the National Broadband Map, available at http://www.broadbandmap.gov/speed.

[5] *See* Lennard G. Kruger and Angele A. Gilroy, *Broadband Internet Access and the Digital Divide: Federal Assistance Programs*, Congressional Research Service (July 17, 2013), available at http://fas.org/sgp/crs/misc/RL30719.pdf. In Michigan, 0.8% of the urban population lacks access to 4Mpbs download/1 Mbps upload broadband internet, while 22.4% of the rural population lacks access. *Id*. at 5.

broadband access as urban Americans.[6] For example, professors from both the University of Notre Dame and Western Michigan University live within the Midwest service territory. They enjoy robust broadband at work, but when they come home they lose the ability to work because they lack sufficient broadband service. Midwest has heard similar complaints from members who work at the Kellogg World Headquarters in Battle Creek, the Whirlpool World Headquarters in Benton Harbor and at Pfizer's large manufacturing facility in Portage.[7] The modern world demands reliable, affordable access to broadband.[8]

In response to member demand, Midwest began investigating the opportunity to provide this valuable service.[9] It became clear that although billions have been spent in rural telecommunications, little infrastructure exists in rural areas to provide broadband.

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[6] Midwest sent a Call to Action to its members to gauge the interest in deploying broadband. Within days, Midwest received more than 600 responses. One member noted: "We need to finish the job of providing broadband to rural areas even when it doesn't fit a profit model. The expense of not providing national coverage to all populations is far more costly. Let rural electric cooperatives that are poised to deliver a high-speed broadband solution do that." A summary of the Midwest Call to Action is attached as Exhibit A.

[7] There are many other significant educational institutions and world class employers in and near Midwest's service territory. The economic viability of rural areas depends on the extension of broadband.

[8] *See USDA Rural Development: Bringing Broadband to Rural America*, United States Department of Agriculture (May 2007), available at http://www.rurdev.usda.gov/rd/pubs/RDBroadbandRpt.pdf, at 3 ("By improving the quality of life in rural America, it no longer is a sacrifice for the next generation to return home and raise their families in a safe and comforting environment. Rural Development provides increased economic opportunities so people who choose to live in small towns can compete on a global level.").

[9] Midwest received its Competitive Local Exchange Carrier certificate from the Michigan Public Service Commission in March 2014. *In the matter of the application of Midwest Energy Cooperative d/b/a Midwest Connections for a license to provide basic local exchange service in designated exchanges*, Case No. U-17512, Order, before the Michigan Public Service Commission (Mar. 18, 2014).

Midwest explored satellite and broadband over power line solutions, but they all failed to provide reliable, scalable service.[10] Ultimately, Midwest designed a 243-mile fiber ring through utility substations and facilities for the immediate purpose of fostering a smarter grid for our members.[11] Leveraging this key asset provides Midwest a unique opportunity to deploy a high-speed, next-generation broadband solution where one currently does not exist. Construction has begun and will continue to roll out slowly absent CAF support.

Rural electric cooperatives, like Midwest, provide service to more than 42 million Americans. We serve the lowest population density by mile.[12] Electric cooperatives grew out of a need to serve communities where no other utilities saw adequate financial incentive.[13] We are closely connected to our members and we leverage that relationship

[10] *See, e.g.*, Jamie Yap, *Powerline communication to survive but in niches*, ZDNet (Sep. 18, 2012), available at http://www.zdnet.com/powerline-communication-to-survive-but-in-niches-7000004416/ ("Powerlines were never made to handle communications. Think about it, you're asking the electric network to handle communications [besides] electricity… The result was a poor and inconsistent communication network, since [powerline communication] would unsurprisingly suffer from interference problems with other appliances that are also plugged into the electricity at home.").

[11] The Executive Summary for Midwest's fiber project is attached as Exhibit B.

[12] Cooperatives serve an average of 7.4 members per mile compared to Municipal electric companies who serve 48 customers per mile and Investor-Owned Utilities that serve an average of 34 customers per mile. *Co-Op Facts & Figures*, National Rural Electric Cooperative Association, available at http://www.nreca.coop/about-electric-cooperatives/co-op-facts-figures/.

[13] *See Geography of Rural Broadband Providers*, Economic Research Service, United States Department of Agriculture, available at http://www.ers.usda.gov/ersDownloadHandler.ashx?file=/media/431237/err78d_1_.pdf, at 15 ("Residents in rural areas have always faced higher costs for telecommunication services than those in urban areas and, at least for the foreseeable future, will continue to do so. Economies of scale for the current technology set are at the core of why they face higher costs.").

to be as responsive as possible to their needs. Today, our members tell us that need is broadband.

## III. Increasing Available Broadband Speeds in Rural America Will Close the Digital Divide.

The Commission currently requires recipients of Connect America Fund ("CAF") funding to provide broadband service at 4 Mbps download and 1 Mbps upload speed.[14] It now proposes to increase that speed to 10 Mbps download to "further the statutory goal of ensuring that consumers in rural parts of the country have access to advanced telecommunications and information services that are reasonably comparable to those services available in urban areas."[15] The Commission seeks comment whether it should similarly increase the upload speed.[16]

Midwest supports the Commission's efforts to improve the broadband service offering in rural areas. Increasing the speed in and of itself may not actually improve service unless the Commission reconsiders how it distributes financial support to provide that service.[17] Midwest believes an increased benchmark supports the need for fiber

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[14] *See Connect America Fund, A National Broadband Plan for Our Future, Establishing Just and Reasonable Rates for Local Exchange Carriers, High-Cost Universal Service Support, Developing an Unified Intercarrier Compensation Regime, Federal-State Joint Board on Universal Service, Lifeline and Link-Up, Universal Service Reform – Mobility Fund*, WC Docket Nos. 10-90, 07-135, 05-337, 03-109, CC Docket Nos. 01-92, 96-45, GN Docket No. 09-51, WT Docket No. 10-208, Report and Order and Further Notice of Proposed Rulemaking, FCC 11-161 (Nov. 18, 2011) ("*Transformation Order*").

[15] *Omnibus Order* at para. 140.

[16] *Omnibus Order* at para. 140.

[17] The Commission's funding of high cost support in rural areas has not provided sufficient broadband in many rural areas, including the Midwest service territory. *See* the National Broadband Map. Available at http://www.broadbandmap.gov/speed.

networks and the need to fund the provider best able to serve each area. A diversity of competitors for CAF funding to provide rural broadband strengthens the likelihood that service will actually be extended into rural areas at reasonable prices.

The Commission proposes to adopt a term of support of ten years for providers awarded CAF Phase II support.[18] The Commission contemplates whether it should provide an opportunity to adjust the obligations later in the term of support.[19] Speeds could increase to as high as 20 Mbps download to 20 percent of locations in the CAF Phase II recipients.[20]

Midwest supports a ten year term for CAF Phase II funding, but encourages the Commission to maintain as much flexibility as possible in awarding the support. As discussed below, rural electric cooperatives like Midwest stand ready, able and willing to construct the broadband networks that have not been built to date by price cap carriers who historically have prioritized the better business case made in more populated areas.[21] Midwest believes it could leverage its own resources and the ten years of support being offered by the Commission to deploy a fiber solution in its service territory.

Midwest supports an increased level of service over the term of support, but it urges the Commission to provide funding to providers willing to construct a network able

[18] *Omnibus Order* at para. 157.

[19] *Omnibus Order* at para. 157.

[20] *Omnibus Order* at paras. 157-58.

[21] Most price cap carriers are publicly traded and obligated to generate financial returns for their stock holders. Cooperatives answer to its members and prioritize providing service, even when there is not a business case for it.

to meet a higher level of service.[22] Deploying broadband to rural areas requires building network infrastructure that often does not exist in rural areas.[23] Midwest and other rural electric cooperatives stand ready to deploy fiber to the home ("FTTH") networks that will be capable of deploying the higher speeds being contemplated by the Commission.[24]

## IV. Additional Flexibility in Meeting Deployment Obligations Serves the Public Interest.

The Commission seeks to introduce greater flexibility into the Phase II funding process.[25] The Commission speculates that allowing a price cap carrier accepting a state wide election or the winner of a competitive auction could accept funding and serve less than 100% of funded locations.[26] The Commission additionally seeks comment on whether it should provide flexibility to serve partially served census blocks. The

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[22] Existing price cap carrier infrastructure will need to be significantly upgraded to provide an evolving level of service. *See* Martha Silver and Derrick Owens, *FCC Proposals Risk Backsliding on Rural Broadband*, Western Telecommunications Alliance (Jan. 12, 2010), available at http://w-t-a.org/wp-content/uploads/2010/07/011210JointBroadbandReleaseFinal.pdf ("[OPASTCO and WTA] urge the FCC to focus on ensuring that high-cost support mechanisms are commensurate with the public need for expanded broadband availability and speed, and reforming the Universal Service Fund (USF) contribution mechanism to adequately support current rural networks and enable the necessary new investment to expand and upgrade rural broadband infrastructure.").

[23] *See* Alexandra Haynes, *Press Release: Graves Urges Commitment to Expanded Broadband Infrastructure in Rural Communities*, House Committee on Small Business (May 12, 2010), available at http://smallbusiness.house.gov/news/documentsingle.aspx?DocumentID=185277 ("The Internet and related technologies are not as widespread as we would like to think. There is a severe lack of appropriate infrastructure that limits many American communities, businesses, and families from gaining full access to these services. Rural areas in many states are particularly likely to lack the infrastructure needed to allow them to benefit from this vital technology. Without access to affordable broadband services, the economies and development of these communities can suffer.").

[24] *See* Exhibit B.

[25] *Omnibus Order* at para. 164.

[26] *Omnibus Order* at para. 164.

Commission expresses concern that awarding funding where private capital has been invested close by might discourage additional private investment.[27]

Midwest embraces any additional flexibility sought by the Commission so long as that flexibility is used to promote the greater deployment of broadband in rural areas. Allowing a price cap carrier to accept marginally less funding to disregard some of the customers it would otherwise be obligated to serve does not serve the goals of universal service. Midwest believes that assuming that an entire area is served based on service in a portion of the service area disregards the needs of rural America.[28] Price cap carriers have cherry picked the least expensive locations to serve, to fulfill the needs of rural America; Midwest believes the service should be extended to all locations in an area where CAF Phase II support is awarded.

## V. Higher Eligibility of Areas for Phase II Support Encourages Broadband Deployment in Rural Areas.

The Commission currently disqualifies price cap carriers from receiving support in areas where an unsubsidized carrier provides facilities-based service.[29] The Commission

[27] *Omnibus Order* at para. 166.

[28] *See* Charles Scott, *A Cooperative Solution to Rural Broadband in Northern Michigan*, Northern Michigan Broadband Cooperative, available at http://www.northernmichiganbroadband.org/white-paper-4/ ("Job creation and retention is critical to the Northern Michigan's economy and Broadband services are required to attract and retain those employees. New businesses are less inclined to locate in an area without Broadband because the employees they need to attract are demanding it. Existing residents also need Broadband connectivity for access to on-line job training and information required to obtain work and perform their jobs.").

[29] *Transformation Order* at para. 103 ("However, all broadband buildout obligations for fixed broadband are conditioned on not spending the funds to serve customers in areas already served by an "unsubsidized competitor." We define an unsubsidized competitor as a facilities-

now seeks to revise its view and deny support to a price cap carrier or another provider who may compete for support in an auction for areas where there is a facilities-based provider regardless of whether the provider is subsidized or not.[30] The Commission seeks comment on whether it is the best use of the CAF budget to provide support in geographic areas where there is another facilities-based terrestrial provider of fixed residential voice and broadband services that meets our current requirements, whether that competitor is subsidized or not.[31]

Midwest is a new telecommunications provider and has not previously engaged on the issue of a subsidized or unsubsidized carrier offering facilities-based service.[32] Midwest appreciates the intent behind the Commission's proposal, but it is unclear what the long term implications may be. Midwest is concerned about how such a rule might be applied where there is existing inferior equipment than might be deployed by an alternate provider with an opportunity to compete for funding. The mere existence of telecommunications equipment capable of deploying broadband at the relatively modest benchmark now used by the Commission of 4 Mbps/1 Mbps would leave many rural

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based provider of residential terrestrial fixed voice and broadband service that does not receive high-cost support.").

[30] *Omnibus Order* at para. 174.

[31] *Omnibus Order* at para. 174.

[32] Midwest received its CLEC authority in March 2014 from the Michigan Public Service Commission. *In the matter of the application of Midwest Energy Cooperative d/b/a Midwest Connections for a license to provide basic local exchange service in designated exchanges*, Case No. U-17512, Order, before the Michigan Public Service Commission (Mar. 18, 2014).

areas far behind.[33] The Commission itself acknowledges that this speed is far behind that available in urban areas and is largely inadequate for advanced services like video conferencing and streaming necessary for many educational applications.[34] Midwest believes where the incumbent hasn't deployed broadband in rural areas or indicated a willingness to serve, the mere existence of a price cap carrier should not preclude other ETCs from receiving funding for broadband.

The Commission expresses concern about the best use of its scarce CAF resources and seeks input on where to devote its high cost support.[35] The Commission believes that any support used to overbuild an existing network would divert much needed resources from other worthy broadband projects.[36] The Commission seeks comment on whether a strict prohibition on overbuilding existing networks would make it unreasonably difficult to construct advanced networks or generate a competitive bid that could fund a cost-effective network.[37]

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[33] *See* Aaron Mamiit, *FCC wants to redefine broadband: 10Mbps downstream, 2.9Mbps upstream*, Tech Times (May 31, 2014), available at http://www.techtimes.com/articles/7842/20140531/fcc-wants-to-redefine-broadband-10mbps-downstream-2-9mbps-upstream.htm ("While the 4 Mbps speed was a huge jump from the FCC's definition for broadband Internet before it that was at 768 kbps, the needs of consumers today require Internet speeds that are far faster than 4 Mbps.").

[34] *See Omnibus Order* at para.140. *See also* Mamiit, *supra* fn. 33 ("Netflix, which requires a minimum speed of 5 Mbps for the user to access streaming HD content, accounts for one-third of Internet traffic at night in North America. YouTube comes at second with 17 percent, and together, video streaming takes up half of evening data usage.").

[35] *Omnibus Order* at para. 176.

[36] *Omnibus Order* at para. 176.

[37] *Omnibus Order* at para. 176.

Midwest appreciates the Commission's intention of funding as many rural broadband projects as possible.[38] Midwest's experience, and the Commission's experience, really demonstrate that to close the digital divide the Commission must remain focused on the deployment of next generation solutions, like the one proposed by Midwest and other rural electric cooperatives.[39] Research suggests that consumers prefer a fiber based solution.[40] There is little meaningful broadband infrastructure in Midwest's service area. The mere existence of underlying telecommunications infrastructure used to provide local telephone service and low quality internet access should not disqualify Midwest from competing for CAF Phase II funding. Likewise, satellite service should not be considered a viable network alternative to fiber.[41]

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[38] Midwest looks forward to competing for support through the Rural Broadband Experiment program this fall. *Connect America Fund, ETC Annual Reports and Certifications*, WC Docket Nos. 10-90, 14-58, Report and Order and Further Notice of Proposed Rulemaking, FCC 14-98 (July 14, 2014) ("*Rural Broadband Experiments Order*").

[39] Most Expressions of Interest submitted to the Commission proposed fiber based solutions. Midwest expects most Rural Broadband Experiments will seek support for a fiber based solution capable of achieving the 25 Mbps/5 Mbps required to compete for the largest category of support ($75M). *See Rural Broadband Experiments Order* at 24 ("The $100 million budget for the rural broadband experiments in price cap territories will be divided into three separate categories: $75 million for projects meeting very high performance standards; $15 million for projects meeting specified minimum performance standards that exceed our current standards; and $10 million for projects dedicated to serving extremely high-cost locations.").

[40] *See, e.g., Home Sales Advantage: Fiber-Based Broadband*, Verizon (June 29, 2009), available at http://newscenter2.verizon.com/press-releases/verizon/2009/home-sales-advantage.html ("A national study of U.S. broadband consumers by RVA LLC Market Research and Consulting, released this week, shows that 82 percent of those buyers who have had broadband service over fiber all the way to the home rank it as the leading real estate development amenity. Four other key prospective features ranked lower among buyers shopping for a new home.").

[41] *See, e.g., Comments of General Communication, Inc. in the matter of Connect America Fund*, WC Docket No. 10-90, Docket No. 09-51, WC Docket No. 07-135, WC Docket No. 05-337, CC Docket No. 01-92, CC Docket No. 96-45, WC Docket No. 03-109, before the FCC

## VI. Rural Broadband Experiments Should Play a Significant Role in Shaping the Offer of Model-Based Support.

The Commission received over 1,000 Expressions of Interest for the Rural Broadband Experiment program.[42] The response by a variety of potential providers of broadband including rural electric cooperatives, like Midwest, Tribes, community groups and affiliates of rate of return carriers was overwhelming and strongly signaled an untapped resource for broadband deployment.[43] The Commission now seeks comment on whether areas covered by broadband experiments (actual/proposed) be exempted from the right of first refusal by the price cap carrier.[44] Basically, the Commission proposes that a price cap carrier would not receive support for and would not be obligated to meet the broadband performance obligations unless it competed for and won support in the geographic area subject to a Rural Broadband Experiment application.[45] It is expected that competition will bring higher levels of service at a lower cost to rural areas across America.

Midwest wholly supports the Commission's proposal. The FCC is poised to award almost $20 billion Connect America funding to support the high cost areas served by the price cap companies. This is a once in a generation opportunity to deploy

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(Jan. 18, 2012) at 5 ("Advanced telemedicine, distance learning, and other many enterprise broadband services will require the deployment of terrestrial middle-mile facilities: satellite services cannot support applications that tolerate only very low latency.").

[42] For a list of the Expressions of Interested received by the Commission *see* http://www.fcc.gov/encyclopedia/rural-broadband-experiments.

[43] Midwest's Expression of Interest is attached as Exhibit C.

[44] *Omnibus Order* at para. 220.

[45] *Omnibus Order* at para. 220.

broadband in rural communities who deserve to be full participants in our modern economy. Midwest appreciates the efforts of the FCC to create an inclusive environment where all eligible providers have an opportunity to compete for support in offering creative solutions and to close the gap between broadband available in urban and rural areas.

The rural areas that Midwest and other electric cooperatives serve are struggling.[46] For the first time in our history, rural America lost population.[47] Since 2011, net job growth in non-metro areas has been near zero.[48] At least one of the contributing factors is the lack of essential services – like broadband. This notion concerns Agriculture Secretary Tom Vilsack who stated:

> Unless we respond and react, the capacity of rural America and its power and its reach will continue to decline. Rural America, with a shrinking population, is becoming less and less relevant to the politics of this country, and we better recognize that, and we had better begin to reverse it.[49]

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[46] *See Testimony of Robert L. Hance*, before the House Agriculture Subcommittee on Livestock, Rural Development and Credit, July 29, 2014. Attached as Exhibit D.

[47] *See* Lorin Kusmin, *Rural America at a Glance, 2013 Edition*, Economic Research Service, United States Department of Agriculture (Nov. 2013), available at http://www.ers.usda.gov/publications/eb-economic-brief/eb24.aspx#.U9ff9_ldV8F at 1 ("The stagnation in nonmetro job growth overlaps with the first recorded period of nonmetro population loss, between 2010 and 2012, which was driven by a decrease in net migration to rural areas.").

[48] *See* Kusmin, *supra* fn. 47, at 1 ("Since the start of 2011, however, net job growth in nonmetro areas has been near zero while employment in metro counties has grown at an annual rate of 1.4 percent.").

[49] *See* Mary Clare Jalonick, *USDA Chief: Rural America Becoming Less Relevant*, Associated Press (Dec. 8, 2012), available at http://bigstory.ap.org/article/usda-chief-rural-america-becoming-less-relevant.

Nationwide, broadband has become an important utility service. Homebuyers base purchasing decisions on the quality of connection available as much as they consider the neighborhood or school district.[50] Further, rural Americans require broadband in order to take advantage of modern precision agriculture equipment and remote access to educational and occupational opportunities. Without some significant change to the status quo, broadband availability will not improve. Midwest believes the Commission can either allocate more resources or allocate existing resources better. Given the scarcity of those resources, Midwest believes a more inclusive and thus competitive approach would allow for a better allocation and more productive result for communities, schools, libraries, and healthcare facilities.

## VII. Phase II Competitive Bidding Process Should Promote Highest Level of Service Possible in Rural America.

The Commission proposes many criteria for the Phase II competitive auctions.[51] Midwest would like to focus its comments on the Commission's proposal to prioritize bids that exceed the Commission's existing standards.[52] The Commission suggests that to qualify for a preference, a bidder must commit to offering service that substantially exceeds the current standards to 100 percent of all funded locations or perhaps to some lesser percentage.[53]

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[50] *See, e.g., Home Sales Advantage: Fiber-Based Broadband,* Verizon (June 29, 2009), available at http://newscenter2.verizon.com/press-releases/verizon/2009/home-sales-advantage.html.

[51] *See Omnibus Order* at paras. 224-34.

[52] *Omnibus Order* at para. 231.

[53] *Omnibus Order* at para. 231.

Midwest supports the Commission's proposal to give preference to bidders that commit to providing a substantially higher standard of service. Midwest is not sure what should qualify as substantially higher service, but it expects the Rural Broadband Experiments will provide some meaningful feedback for the Commission. Generally, giving funding priority to next generation networks capable of delivering high speed broadband serves the public interest and gives Rural areas the best chance of catching up to the technology that most Americans take for granted. Midwest would support allowing bidders to retain a preference if at least 80% of the funded locations would be served with service that substantially exceeds the Commission's standards.

## VIII. Conclusion.

Rural electric cooperatives revolutionized life in Rural America in the 1930s and 1940s.[54] Small companies with close community ties took risks, built networks and brought the economic development desperately sought at that time. The world may be a different place today, but once again Rural areas are lagging in the deployment of critical utility infrastructure. Rural electric cooperatives are again prepared to take risks, build next generation networks and deliver the economic development associated with robust broadband.

The Commission stands at a vital cross road. If it awards high cost support in the same manner it always has, the result will not change. The time has come to allow rural communities to catch up and enjoy the technological benefits of the modern world.

[54] *See History of Rural Electric Co-Ops*, National Rural Electric Cooperatives Association, available at http://www.nreca.coop/about-electric-cooperatives/history-of-electric-co-ops/.

Midwest implores the Commission to take an inclusive approach to high cost funding. Allow all potential providers to compete for the privilege of building networks. Now is the time to close the digital divide for good.

Respectfully submitted on this 8th day, August 2014.

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**Before the**
**FEDERAL COMMUNICATIONS COMMISSION**
**Washington, DC 20554**

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|---|---|---|
| In the Matter of | ) | |
| | ) | |
| Connect America Fund | ) | WC Docket No 10-90 |
| | ) | |
| Universal Service Reform --Mobility Fund | ) | WT Docket No. 10-208 |
| | ) | |
| ETC Annual Reports and Certifications | ) | WC Docket No. 14-58 |
| | ) | |
| Establishing Just and Reasonable Rates for Local Exchange Carriers | ) | WC Docket No. 07-135 |
| | ) | |
| Developing an Unified Intercarrier Compensation Regime | ) | CC Docket 01-92 |
| | ) | |

## COMMENTS OF THE DEERE & COMPANY

Deere & Company ("Deere"), by its undersigned attorneys, hereby submits these comments in response to the Further Notice of Proposed Rulemaking released on June 10, 2014, in the above captioned dockets.[1]

Deere (NYSE: DE) is a world leader in providing advanced agricultural and other equipment and services to customers whose work is linked to the land - those who cultivate, harvest, transform, enrich and build upon the land to meet the world's dramatically increasing need for food, fuel, shelter and infrastructure. Since 1837, John Deere has delivered innovative farming equipment of superior quality, built on a

[1] *Connect America Fund; A National Broadband Plan for Our Future; ETC Annual Reports and Certifications; Establishing Just and Reasonable Rates for Local Exchange Carriers; Universal Service Reform – Mobility Fund; Developing a Unified Intercarrier Compensation Regime*; WC Docket Nos. 10-90, 07-135, 14-58, WT Docket No. 10-208, CC Docket No. 01-92, Report and Order, Declaratory Ruling, Order, Memorandum Opinion and Order, Seventh Order on Reconsideration, and Further Notice of Proposed Rulemaking, FCC 14-54 (rel. June 10, 2014) ("*CAF FNPRM*").

tradition of integrity and, today, Deere is pioneering state-of-the-art data and information solutions designed to greatly enhance productivity and environmental safety.

Deere is intensely interested in expediting the deployment of high speed broadband services, especially high speed wireless and backhaul facilities, to rural areas where, by definition, farming and other agricultural operations are concentrated. Farmers and ranchers in rural America increasingly rely on broadband access to manage and operate their businesses. Accordingly, Deere strongly supports the Commission's efforts to provide targeted and effective support to promote expanded broadband services in rural areas through the Connect America and Mobility funds. To that end, Deere provides the following general input to the *CAF FNPRM*:

## I. Future Growth of America's Agricultural Sector Requires Expanded Broadband in Rural Areas.

Expanded broadband facilities and services fostered by the Connect America and Mobility funds are critical economic drivers to rural communities. In particular, high speed broadband is not only essential to business centers in rural towns and traditional anchor institutions, it is also an essential service for agricultural operations that form the economic heart of many American rural communities. Agricultural producers are facing growing demands to produce more food, fuel and fiber for a growing, more prosperous world population, and they must do so with limited resources and increasing regulation. Not only is it critical that farm buildings have access to high speed broadband to communicate with their customers and vendors, follow commodity markets, gain access to new markets around the world, and manage regulatory compliance, but more and more farmers are demanding capability for machine-to-machine communications from the field

that make possible significant improvements in real-time productivity and cost management.

Much of the future of enhanced farming efficiency and productivity turns on the grower's ability to gather, process, and transmit data using advanced information and communications technologies. Technology-equipped machine solutions enable agronomic decision-making to advance productivity, improve agriculture profitability and global competitiveness, and optimize inputs for continuous environmental improvement.[2] With superior, precise, site-specific data, a farmer can analyze and carefully adjust his or her farming methods to be the most efficient, most economical, and most environmentally friendly possible, thus improving productivity and sustainability. However, enabling farmers to utilize machine-to-machine data fully requires significant improved communications capacity and access to high speed mobile broadband.

Today, many of Deere's customers are challenged with a lack of adequate cellular coverage in the fields where agricultural equipment operates. Deere's JDLink™ data service, for example, currently relies on the cellular telephone network to transmit telemetric machine operation data. The lack of coverage needed for these solutions to transmit telemetric data from the machines is already a concern, but the shortfall in coverage will only become more problematic as data volumes increase. Due to significant gaps in cell coverage in rural areas where farm machines operate, today JDLink™ data transmissions have only a 70% successful call completion rate. Absent significant improvements in cell coverage in cropland areas, Deere expects that this

[2] Deere's FarmSight™ solution, for example, is dependent upon broadband data flow to provide products and services such as Machine Optimization, Logistics Optimization and Agronomic Decision support.

figure will drop to about 50% in two to three years as agricultural demand for broadband services increases.

These services depend on stable, reliable high speed connections to equipment operating in remote locations. This is not a problem that can be resolved by relying on satellite services or even more spectrum. In addition to fiber-to-farm buildings, rural areas need more wireless antenna towers, all of which must be connected by fiber backhaul to the broadband network provider.

## II. The Connect America Fund Should Make Support Available for Machine-to-Machine Broadband Operations on Cropland.

Deere recommends that the Commission consider enhancing the definition of unserved and underserved areas to include the USDA definition of "cropland."[3] This inclusion would allow machine-to-machine mobile broadband transmissions by agricultural equipment in the field and associated operators' mobile devices to be counted in the justification for broadband expansion. It should also be recognized that these machines-with-modems also involve a driver who is communicating separately by cell phone and often using a tablet in the equipment cab.

There are over 350 million acres of major cropland in the United States and as noted above, agriculture is driven more than ever by advanced farming technologies, of which broadband is a key enabler. The potential number of machines with modems working these 350 million acres of cropland should be counted when determining mobile coverage. By counting agricultural machine-to-machine broadband communications and operator mobile devices when analyzing the potential benefits of support in rural areas

[3] USDA GIS data for cropland can be found at: http://www.nass.usda.gov/research/Cropland/Release/index.htm.

and by prioritizing funding for areas identified as "cropland," the Commission can strengthen funding to those areas of the country that need it most.

## III. The Commission Should Increase the Minimum Speeds but Retain Flexibility for Carriers to Deploy at Lower Speeds In Unserved and Underserved Communities.

Deere supports the Commission's initiative to increase the minimum broadband speeds that are promoted through universal service funds to 10 Mbps downstream and to increase the upstream speed requirement to something higher than 1 Mbps.[4] However, Commission rules should permit deployment of broadband-capable infrastructure at lower speeds where requests for broadband services meeting the new benchmarks are not "reasonable," *i.e,* the carrier cannot cost-effectively extend a broadband-capable network meeting the new benchmarks to a requested location.[5] Some rural areas have *no* effective access to high speed broadband today and therefore delivering to rural areas broadband even at speeds that do not match services that are available in urban areas would produce enormous benefits that the Commission should not overlook by holding recipients to rigid speed benchmarks.[6]

## IV. Recipients Should Have Flexibility to Choose Technologies or Combinations Thereof.

Deere also supports allowing Phase II recipients to satisfy their obligations using any technology or combination thereof whether wireline, fixed or mobile, terrestrial or satellite that meets the performance standards for Phase II (speed, latency, usage

[4] *CAF FNPRM* ¶¶ 138-46.
[5] *Id.* ¶ 144.
[6] *Id.* ¶ 146.

allowance and pricing.)[7] Providers are in the best position to assess the needs of local customers and to choose among technologies that can best serve their needs. Further, Deere strongly supports the Commission's encouragement of wireless providers to participate in Phase II.[8] For many rural areas, including farm-intensive areas with significant tracts of cropland, wireless service will be the superior technology choice to achieve cost-effective coverage. To that end, Deere endorses the Commission's proposal to allow the use of mobile or satellite technology that meets Phase II requirements, while maintaining the service and pricing standards established by the Bureau for the offer of model-based support. [9]

With respect to mobile service, Deere urges the Commission to adopt requirements that 1) permit consumers subscribing to service to attach or tether their mobile connections to other devices, and 2) permit users to use multiple devices simultaneously.[10] Enabling consumers and businesses the flexibility to use subsidized mobile services in whatever way best meets their needs allows users to shape their own technology solutions based on specific needs and local conditions and is consistent with the experience of urban users.

## V. Mobility Phase II Funds Should Be Made Available To Serve Croplands

With respect to the Mobility Fund Phase II, the Commission proposes to target the funds set aside to support mobile services on preserving and extending service in those areas that will not be served by the market without governmental support.[11] Deere

[7] *Id.* ¶ 154.
[8] *Id.*
[9] *Id.*
[10] *Id.* ¶ 156.
[11] *Id.* ¶ 239.

supports greater focus on promoting wireless broadband in rural areas. While rural fixed broadband expansion brings many benefits to rural communities, there remains a significant lack of cellular coverage creating a host of unserved and underserved areas. Additional wireless facilities are needed in America's rural areas to enable broadband services. In the farming context, if we only focus on providing fixed broadband to farm buildings, we will overlook the important need for wireless coverage of cropland necessary to fuel today's farming operations which, in turn, supports essential economic activity and provides jobs throughout rural communities.

Deere recommends that in developing this concept further, the Commission should consider enhancing the definition of unserved and underserved areas to include the USDA definition of cropland.[12] As discussed in Section II above, this step would allow machine-to-machine mobile broadband transmissions by agricultural equipment in the field and associated operators' mobile devices to be counted in the justification for broadband expansion.

## VI. Rate of Return Carriers Should Have Greater Access to Funds.

While Deere is not commenting on the details of the Commission's proposed approach to establishing a "Connect America Fund" for rate of return carriers, Deere strongly endorses this step.[13] Rate of return carriers are subject to the same market and technology pressures as price cap carriers and have a long history of dedication to serving the needs of rural communities. Deere agrees that adopting reforms including longer term reforms to the support mechanisms available to rate of return carriers will further the Commission's overarching goal of fostering deployment of broadband infrastructure and

[12] *See* footnote 3 *infra.*
[13] *CAF FNPRM* ¶ 258.

services throughout rural areas. As a part of this effort, Deere also supports adoption of a stand-alone broadband funding mechanism for rate of return carriers.[14]

## VII. The Connect America Fund Should be Made Available To Rate of Return Carriers to Support Middle Mile Facilities

Deere agrees that the Commission's rules should provide support for middle mile facilities for rate of return carriers.[15] It is well known that one critical barrier to broadband deployment in rural areas is the lack of middle mile transport, *i.e.*, high capacity transport facilities, ideally fiber optics, connecting a remote community to larger communities that either have broadband traffic aggregation points or have access to competitive high capacity transport facilities connecting to traffic aggregation points in metropolitan areas.

Fiber optic networks that form the backbone of the Internet and telecommunications networks often do not reach rural communities; underserved areas also often lack redundant telecommunications facilities necessary for robust availability and reliability leaving some rural communities vulnerable to outages and service disruptions. Without access to high capacity backhaul at reasonable cost, even wireless local broadband service is generally uneconomic in rural areas. For a new broadband wireless provider, backhaul is a major element of its cost structure. Capacity must be purchased in large increments at high costs, well in excess of the immediate needs of a startup service provider, and a significant term commitment is often required. This cost concern continues to deter investment and even when initial investments are made, the high fixed monthly costs for transport place providers under extreme pressure to build a

[14] *Id.* ¶ 269.
[15] *Id.* ¶ 300.

customer base quickly enough to support such costs. Deere expects that making funds available for middle mile facilities will have a significant beneficial impact in promoting expanded broadband deployment in rural areas.

Deere does not oppose providing support to Tribal Lands as the Commission proposes,[16] but encourages the Commission to expand the support for middle mile facilities to include other rural areas that do not qualify as Tribal Lands. Deere also supports the requirement that middle mile funding come with a condition that access to that middle mile connectivity must be provided at a reasonable rate.[17]

Respectfully submitted,

DEERE & COMPANY

/s/
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Dated: August 8, 2014

[16] *Id.* ¶ 302-08.
[17] *Id.* ¶ 307.

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August 8, 2014

Secretary Marlene H. Dortch
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

**RE: Comments for Proposed Rules: WC Docket No. 10-90, WT Docket No. 10-208, WC Docket No. 14-58, WC Docket No. 07-135, CC Docket No. 01-92**

The American Farm Bureau Federation (Farm Bureau) supports the Federal Communications Commission's (FCC) creation of the Connect America Fund (CAF) to preserve and advance voice and robust broadband services, both fixed and mobile, in high-cost areas of the nation that the marketplace would not otherwise service. Farm Bureau represents more than 6 million families who live and work in rural America.

Current and future generations of rural Americans will be left behind their fellow citizens if they are unable to access affordable broadband services. In rural America, broadband services increase economic development through new business opportunities, improve health care and educational services, allow the use of precision agriculture equipment, enhance public safety, and allows for participation in government.

Farm Bureau supports the FCC's proposal to increase the minimum broadband speed to 10 Mbps downstream and increase the 1 Mbps upstream. In addition to the minimum speed, the FCC must ensure the broadband infrastructure supported by the CAF has the ability to increase that minimum speed in future years. The digital divide will continue if the proper infrastructure is not able to meet the needs of the future. If the FCC does not address broadband infrastructure, the digital divide will continue and rural Americans will be negatively impacted.

The Small Business Administration (SBA) conducted a study in 2010 that evaluated the methods used by small businesses to access broadband services and the impact of broadband on small businesses. The study found that broadband service is vital for small businesses in "achieving strategic goals, improving competitiveness and efficiency, reaching customers, and interacting with vendors."[1] Farmers and ranchers in rural America rely on broadband access to manage and operate successful businesses, just as businesses do in urban America. Access to broadband allows farmers and ranchers to utilize precision agriculture equipment, follow commodity markets, communicate with their customers and gain access to new markets around the world.

Precision agriculture relies on broadband services so farmers and ranchers can manage efficient, economical and environmentally conscious businesses. Farmers use precision agriculture for accurate mapping of field boundaries, roads and irrigation systems; for precision planting; and for targeting the application of fertilizer and chemicals that combat weeds and crop diseases.

[1] U.S. Small Business Administration, *The Impact of Broadband Speed and Price on Small Business*. 2010 Nov. http://archive.sba.gov/advo/research/rs373tot.pdf.

Precision agriculture also allows farmers to work despite low-visibility field conditions such as rain, dust, fog and darkness. As more precision equipment becomes available, farmers and ranchers cannot take full advantage of that equipment if they do not have access to broadband.

According to the SBA study, the lack of competition within the Internet market limits Internet options available for small businesses to find the best package of speed and price.[2] In addition, 48 percent of rural small businesses are not satisfied with the speed of their Internet connection.[3] Farmers, ranchers and other small businesses need competition within the Internet market to allow them to access the most cost-effective broadband option. The FCC needs to increase the competition within the Internet market by allowing new entities, such as electric cooperatives, to participate in the CAF.

Many farmers and ranchers conduct their business operations from their homes. Access to broadband service in rural America today is the equivalent to access to electricity in rural America in the 1930s, not universally accessible. According to the National Rural Electric Cooperative Association, nine out of 10 rural homes were without electric service in the mid-1930s.[4] The U.S. Department of Agriculture reports a total of 67 percent of U.S. farms had Internet service in 2013, compared with 62 percent in 2011.[5] This number is inflated because it includes dial-up as an Internet service. The report states that 5 percent of farms used dial-up to access the Internet in 2013. No individual or business owner should be connecting to the Internet via dial-up in today's global economy. Farmers or ranchers relying on dial-up are not better off than the 33 percent of farmers and ranchers with no Internet access. They both are experiencing the digital divide while trying to manage a business.

As government agencies increase the amount of information they disseminate and collect, affordable broadband is a necessary tool for farmers and ranchers. Farmers and ranchers without access to affordable broadband services might be unable to comply with government regulations, take advantage of government services or gain market information. Therefore, affordable home broadband access is vital to keeping American agriculture competitive in the world marketplace.

America's farmers and ranchers need viable rural communities to supply the services needed to support their families and agricultural operations. To thrive, rural areas need access to health care, government services and educational and business opportunities. For many rural communities, access can only be gained by using broadband services and sophisticated technologies that require high-speed connections. Rural business owners need access to new markets and to communicate with their customers. Rural health care providers need access to health information technology. Rural students need access to educational resources and continuing education opportunities.

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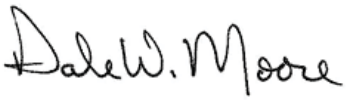
[2] U.S. Small Business Administration, http://archive.sba.gov/advo/research/rs373tot.pdf
[3] Ibid.
[4] National Rural Electric Cooperative Association, "History of Electric Co-ops", 2014, http://www.nreca.coop/about-electric-cooperatives/history-of-electric-co-ops/.
[5] U.S. Department of Agriculture, *Farm Computer Usage and Ownership*, National Agricultural Statistics Service. 2013 Aug. http://usda.mannlib.cornell.edu/usda/current/FarmComp/FarmComp-08-20-2013.pdf.

Farm Bureau supports the creation of the CAF, increasing downstream and upstream speeds, and allowing new entities to participate in the CAF. Farm Bureau will continue working with the FCC in its commitment to revitalize our rural communities by expanding broadband access to rural America at an affordable rate.

Sincerely,



Dale Moore
Executive Director
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